

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Patent Application No. 09/972,902

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. By this Amendment, Applicant has canceled claims 3 and 29. Thus, claims 1, 4-28 and 30-32 are pending in the application. In response to the Office Action (Paper No. 9), Applicant respectfully submits the pending claims define patentable subject matter.

I. Preliminary Matters

Applicant requests the Examiner indicate acceptance of the formal drawings submitted on October 11, 2002 in the next action.

II. Statement of Substance of Interview

Applicant thanks the Examiner for the courtesy of the interview on December 16, 2003. In accordance with the requirements regarding submission of the substance of the interview, Applicant submits the following remarks which reflect the claims, amendments and prior art discussed during the interview.

III. § 112, First Paragraph, Rejections

Claims 1 and 3-14 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed subject matter. In particular, the Examiner asserts that “[p]revention of the corner

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fibers from contacting the buffer tube by placing the cushion member parallel to a central longitudinal axis has not been described in the specification.”

Claims 1 and 3-14 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skill in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the Examiner maintains that the newly added limitation of claim 1 (“the cushion member is disposed parallel to a central longitudinal axis of the optical fiber ribbon stack to prevent corner fibers of the optical fiber ribbon stack from contacting the buffer tube”) is not enabled by the disclosure because “[a]n infinite number of planes or lines can be formed parallel to the longitudinal axis.” Further, the Examiner questions “[h]ow this feature can prevent the corner fibers from contacting the buffer tube.”

As discussed during the interview, the specification describes and drawings show how the elongated cushion members are disposed on an outer side surface of the optical fiber ribbon stack parallel to a central longitudinal axis of the optical fiber ribbon stack and serve to protect the corner fibers of the ribbon stack from strains and stresses by preventing the corner fibers from contacting the buffer tube under thermo-mechanical loading conditions.

As described in the specification at page 6, lines 5-10 with reference to Figure 2,

[a] plurality of cushion members 30, in the form of elongated strips, threads, rods or small-diameter tubes, are attached to the sides of the ribbon stack 10 at locations near or overtop the corner edges of the ribbon stack 10. The cushion members serve as spacers and strain energy absorbing members which protect corner fibers 15 located at the edges of the ribbon stack 10 from bending and contact stresses. (emphasis added)

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Further as described on page 7, lines 1-9,

[u]nder thermo-mechanical loading conditions, the corner fibers 15 press first against the cushion members 30 which are softer than or the same stiffness as the ribbon stack 10. Since the corner fibers 15 do not initially contact the buffer tube wall, the cushion members 30 first act as continuation of the fiber-friendly matrix material of the ribbon stack 10. Next, when the cushion members 30 contact the buffer tube wall, the cushion members are subjected to further deflection and compression with gradually increasing stiffness. As a result, the cushion members 30 function as a spring or a shock absorber, wherein the resistance increases with the applied load.

Further, Figure 2 shows the elongated cushion members 30 (i.e., elongated strips, threads, rods or small-diameter tubes) are disposed on the optical fiber ribbon stack 10 parallel to a central longitudinal axis of the optical fiber ribbon stack 10. See also page 7, lines 10-19 and page 8, lines 11-20.

Accordingly, the Examiner is requested to remove the § 112, first paragraph, rejections as indicated in the interview summary.

IV. Prior Art Rejections

Claims 1, 7, 15-17, 19-22 and 26 are rejected under 35 U.S.C. § 102(b) as being anticipated by Coleman (U.S. Patent No. 6,052,502). Claims 3-6, 8-14, 18, 23-25 and 27-32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Coleman.

By this Amendment, Applicant has amended independent claims 1 and 15 to recite a plurality of cushion members in order to further distinguish the claimed invention from Coleman,

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as discussed the interview. Further, dependent claims 3 and 29 have been canceled and the other dependent claims have been amended to reflect the changes to claims 1 and 15.

Applicant respectfully submits that claim 1 would not have been anticipated by or rendered obvious in view of Coleman because the cited reference does not teach or suggest “a plurality of cushion members disposed on an outer side surface of the optical fiber ribbon stack..., wherein the cushion members ... prevent corner fibers of the optical fiber ribbon stack from contacting the buffer tube”, as claimed.

Similarly, Applicant respectfully submits that claim 15 would not have been anticipated by or rendered obvious in view of Coleman because the cited reference does not teach or suggest “a plurality of cushion members disposed on an outer side surface of the optical fiber ribbon stack; an elastic membrane surrounding the optical fiber stack and the cushion members; [and] a buffer tube surrounding the elastic member”, as claimed.²

Accordingly, Applicant respectfully submits that the claimed invention should be allowable over Coleman because the cited reference does not teach or suggest all of the features of the claims.

Lastly, the Examiner indicated during the interview that he believes U.S. Patent No. 5,621,842 (Keller) is relevant to the claimed invention. Although the claims are not presently rejected based the Keller patent, Applicant submits that the claimed invention would not have been anticipated by or rendered obvious in view of the teachings of Keller.

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With regard to independent claim 1, Applicant respectfully submits that Keller does not teach or suggest a plurality of cushion members disposed on an outer side surface of the optical fiber ribbon stack . . ., wherein the cushion members . . . prevent corner fibers of the optical fiber ribbon stack from contacting the buffer tube", as claimed. In particular, Keller discloses disposing a plurality of filler members around an optical fiber ribbon stack, wherein the filler members are provided as reinforcing members to reduce thermally induced stress by. That is, the filler members are made of glass, aramide or other material having a modulus of elasticity of at least 25,000 N/mm² (which corresponds to very hard materials such as steel and silica) and a coefficient of expansion similar to that of the optical fibers (see col. 3, lines 56-63, and col. 4, lines 35-38). On the other hand, the claimed invention requires cushion members (i.e., soft materials with properties similar to that of the matrix rather than the fibers) which prevent corner fibers of the optical fiber ribbon stack from contacting the buffer tube (i.e., protect the corner fibers from bending and contact stresses).

Further, with regard to independent claim 15, Applicant respectfully submits that it is quite clear that Keller does not teach or suggest the claimed elastic membrane surrounding the optical fiber stack and the cushion members.

² Note that the claimed elastic member cannot correspond to the buffer tube 13 of Coleman since claim 15 recites both "an elastic membrane surrounding the optical fiber stack and the cushion members" and "a buffer tube surrounding the elastic member".

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V. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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